Space Weather Forecast

Issued on Wednesday 4 December 2024 at 00:16 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with occasional Common-class flares, the largest at 03/0544 UTC from one of the two regions near the southwest limb. These remained relatively inactive, beside the odd common-class flare, and showed some sign of declining. There are currently nine sunspot regions currently on the disc, however the majority are small and simple. Alongside the two in the southwest. thee other exceptions are two new regions that have moved onto the Earth-facing disc from over the southeast limb. While potentially also providing a flaring risk, these remain difficult to assess due to their location.

No Earth-directed CMEs (coronal mass ejections) have been observed.

Solar Wind / Geomagnetic Activity: The ongoing passage of a weak, glancing CME was observed, arriving just before this period around 02/2000 UTC, after likely leaving the Sun on 27 Nov. Solar wind speeds were mainly slightly elevated, around 450km/s, Interplanetary Magnetic Field (IMF) strength was predominately Moderate, but with Weak spells. The north-south component was mainly Weakly negative (southward), but briefly reached Moderate levels. However, this also included a brief Moderate positive (northward) spell at first, and became mostly positive after 03/1715 UTC as the CME receded. Geomagnetic activity was Quiet to Unsettled (Kp 2-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Mostly Low activity is expected with a chance of isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. There are no faster solar winds from any coronal holes expected through the period, with slightly elevated winds easing expected to ease to be mainly background. Geomagnetic activity is forecast to be Quiet with isolated Unsettled intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background.

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	50	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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